

Application No.: 10/625,234

2

Docket No.: 299002056700

**AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions, and listings of claims in the application:

Claim 1 (Original): A semiconductor light emitting device, comprising:

a semiconductor substrate;

a stacked semiconductor structure formed on the semiconductor substrate;

a striped ridge structure; and

a semiconductor current confinement layer provided on a side surface of the striped ridge structure;

wherein the stacked semiconductor structure includes a first semiconductor clad layer, a semiconductor active layer, a second semiconductor clad layer, and a semiconductor etching stop layer;

wherein the striped ridge structure includes a third semiconductor clad layer, a semiconductor intermediate layer, and a semiconductor cap layer;

wherein the striped ridge structure is provided on the semiconductor etching stop layer; and

wherein an interface between the semiconductor current confinement layer and the semiconductor etching stop layer and an interface between the semiconductor current confinement layer and the striped ridge structure each have a content of impurities of less than  $1 \times 10^{17}/\text{cm}^3$ .

Claim 2 (Original): A semiconductor light emitting device according to claim 1, wherein the impurities are carbon-based impurities.

Claim 3 (Original): A semiconductor light emitting device according to claim 1, wherein the impurities are oxygen-based impurities.

pa-922999

Application No.: 10/625,234

3

Docket No.: 299002056700

**Claim 4 (Original):** A semiconductor light emitting device according to claim 1, wherein the impurities are carbon-based impurities and oxygen-based impurities.

**Claim 5 (Withdrawn):** A method for producing a semiconductor light emitting device, comprising the steps of:

forming a first stacked semiconductor structure on a semiconductor substrate, the first stacked semiconductor structure including a first semiconductor clad layer, a semiconductor active layer, a second semiconductor clad layer and a semiconductor etching stop layer;

forming a second stacked semiconductor structure on the semiconductor etching stop layer, the second stacked semiconductor structure including a third semiconductor clad layer, a semiconductor intermediate layer and a semiconductor cap layer;

forming an oxide layer on the second stacked semiconductor structure;

processing at least the second stacked semiconductor structure into a striped ridge structure;

washing the first stacked semiconductor structure and the striped ridge structure with a washing liquid having a prescribed resistivity; and

forming a semiconductor current confinement layer on a side surface of the striped ridge structure.

**Claim 6 (Withdrawn):** A method for producing a semiconductor light emitting device according to claim 5, wherein the prescribed resistivity is higher than 1 M $\Omega$ m.

**Claim 7 (Withdrawn):** A method for producing a semiconductor light emitting device according to claim 5, wherein the washing liquid is pure water.

pa-922999

Application No.: 10/625,234

4

Docket No.: 299002056700

**Claim 8 (Withdrawn):** A method for producing a semiconductor light emitting device according to claim 7, wherein the prescribed resistivity is higher than 1 MΩm.

**Claim 9 (New):** A semiconductor light emitting device formed by a method comprising:

- forming a first stacked semiconductor structure on a semiconductor substrate, the first stacked semiconductor structure including a first semiconductor clad layer, a semiconductor active layer, a second semiconductor clad layer and a semiconductor etching stop layer;
- forming a second stacked semiconductor structure on the semiconductor etching stop layer, the second stacked semiconductor structure including a third semiconductor clad layer, a semiconductor intermediate layer and a semiconductor cap layer;
- forming an oxide layer on the second stacked semiconductor structure;
- processing at least the second stacked semiconductor structure into a striped ridge structure;
- washing the first stacked semiconductor structure and the striped ridge structure with a  
washing liquid having a prescribed resistivity, said washing being sufficient to provide a content of impurities of less than  $1 \times 10^{17}/\text{cm}^3$  at each of an interface between the semiconductor current confinement layer and the semiconductor etching stop layer and an interface between the semiconductor current confinement layer and the striped ridge structure; and
- forming a semiconductor current confinement layer on a side surface of the striped ridge structure.

**Claim 10 (New):** A semiconductor light emitting device according to claim 9, wherein said prescribed resistivity is greater than 1 MΩm.

**Claim 11 (New):** A semiconductor light emitting device according to claim 9, wherein said washing liquid is pure water.

pa-922999

Application No.: 10/625,234

5

Docket No.: 299002056700

**Claim 12 (New):** A semiconductor light emitting device according to claim 11, wherein said prescribed resistivity is greater than 1 MΩm.

**Claim 13 (New):** A plurality of a semiconductor light emitting device of claim 9 taken from separate lots, wherein one of said lots would have included a semiconductor light emitting device having a content of impurities of at least  $1 \times 10^{17}/\text{cm}^3$  had said lot been made by a method delineated in claim 9 but which method did not include washing the first stacked semiconductor structure and the striped ridge structure with the washing liquid of prescribed resistivity.

**Claim 14 (New):** A plurality of a semiconductor light emitting device of claim 10 taken from separate lots, wherein one of said lots would have included a semiconductor light emitting device having a content of impurities of at least  $1 \times 10^{17}/\text{cm}^3$  had said lot been made by a method delineated in claim 10 but which method did not include washing the first stacked semiconductor structure and the striped ridge structure with the washing liquid of prescribed resistivity.

**Claim 15 (New):** A plurality of a semiconductor light emitting device of claim 11 taken from separate lots, wherein one of said lots would have included a semiconductor light emitting device having a content of impurities of at least  $1 \times 10^{17}/\text{cm}^3$  had said lot been made by a method delineated in claim 11 but which method did not include washing the first stacked semiconductor structure and the striped ridge structure with the washing liquid of prescribed resistivity.

**Claim 16 (New):** A plurality of a semiconductor light emitting device of claim 12 taken from separate lots, wherein one of said lots would have included a semiconductor light emitting device having a content of impurities of at least  $1 \times 10^{17}/\text{cm}^3$  had said lot been made by a method

pa-922999

Application No.: 10/625,234

6

Docket No.: 299002056700

delineated in claim 12 but which method did not include washing the first stacked semiconductor structure and the striped ridge structure with the washing liquid of prescribed resistivity.

Claim 17 (New): A plurality of a semiconductor light emitting device of claim 1 taken from separate lots, wherein one of said lots would have included a semiconductor light emitting device having a content of impurities of at least  $1 \times 10^{17}/\text{cm}^3$  because said lot had been made by a method comprising:

forming a first stacked semiconductor structure on a semiconductor substrate, the first stacked semiconductor structure including a first semiconductor clad layer, a semiconductor active layer, a second semiconductor clad layer and a semiconductor etching stop layer;

forming a second stacked semiconductor structure on the semiconductor etching stop layer, the second stacked semiconductor structure including a third semiconductor clad layer, a semiconductor intermediate layer and a semiconductor cap layer;

forming an oxide layer on the second stacked semiconductor structure;

processing at least the second stacked semiconductor structure into a striped ridge structure;

washing the first stacked semiconductor structure and the striped ridge structure with a washing liquid not having a prescribed resistivity; and

forming a semiconductor current confinement layer on a side surface of the striped ridge structure.

Claim 18 (New): A plurality of a semiconductor light emitting device of claim 2 taken from separate lots, wherein one of said lots would have included a semiconductor light emitting device having a content of impurities of at least  $1 \times 10^{17}/\text{cm}^3$  because said lot had been made by a method comprising:

pa-922999

Application No.: 10/625,234

7

Docket No.: 299002056700

forming a first stacked semiconductor structure on a semiconductor substrate, the first stacked semiconductor structure including a first semiconductor clad layer, a semiconductor active layer, a second semiconductor clad layer and a semiconductor etching stop layer;

forming a second stacked semiconductor structure on the semiconductor etching stop layer, the second stacked semiconductor structure including a third semiconductor clad layer, a semiconductor intermediate layer and a semiconductor cap layer;

forming an oxide layer on the second stacked semiconductor structure;

processing at least the second stacked semiconductor structure into a striped ridge structure;

washing the first stacked semiconductor structure and the striped ridge structure with a washing liquid not having a prescribed resistivity; and

forming a semiconductor current confinement layer on a side surface of the striped ridge structure.

Claim 19 (New): A plurality of a semiconductor light emitting device of claim 3 taken from separate lots, wherein one of said lots would have included a semiconductor light emitting device having a content of impurities of at least  $1 \times 10^{17}/\text{cm}^3$  because said lot had been made by a method comprising:

forming a first stacked semiconductor structure on a semiconductor substrate, the first stacked semiconductor structure including a first semiconductor clad layer, a semiconductor active layer, a second semiconductor clad layer and a semiconductor etching stop layer;

forming a second stacked semiconductor structure on the semiconductor etching stop layer, the second stacked semiconductor structure including a third semiconductor clad layer, a semiconductor intermediate layer and a semiconductor cap layer;

forming an oxide layer on the second stacked semiconductor structure;

processing at least the second stacked semiconductor structure into a striped ridge structure;

pa-922999

Application No.: 10/625,234

8

Docket No.: 299002056700

washing the first stacked semiconductor structure and the striped ridge structure with a washing liquid not having a prescribed resistivity; and

forming a semiconductor current confinement layer on a side surface of the striped ridge structure.

Claim 20 (New): A plurality of a semiconductor light emitting device of claim 4 taken from separate lots, wherein one of said lots would have included a semiconductor light emitting device having a content of impurities of at least  $1 \times 10^{17}/\text{cm}^3$  because said lot had been made by a method comprising:

forming a first stacked semiconductor structure on a semiconductor substrate, the first stacked semiconductor structure including a first semiconductor clad layer, a semiconductor active layer, a second semiconductor clad layer and a semiconductor etching stop layer;

forming a second stacked semiconductor structure on the semiconductor etching stop layer, the second stacked semiconductor structure including a third semiconductor clad layer, a semiconductor intermediate layer and a semiconductor cap layer;

forming an oxide layer on the second stacked semiconductor structure;

processing at least the second stacked semiconductor structure into a striped ridge structure;

washing the first stacked semiconductor structure and the striped ridge structure with a washing liquid not having a prescribed resistivity; and

forming a semiconductor current confinement layer on a side surface of the striped ridge structure.

pa-922999